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# JOURNAL

OF THE

# Pan-Pacific Research Institution

A Periodical Record of Investigations Bearing on Problems of Food Production, Distribution, Conservation and Consumption, as well as on Public Health, and Race and Population Problems as Related to the Countries Bordering on the Pacific.

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AT PRESENT PUBLISHED QUARTERLY AT HONOLULU, HAWAII
BY THE
PAN-PACIFIC UNION

More frequent publication as acceptable material is contributed.

# Survey of 202 Farm Families in China

Mao Yung, a student in the College of Agriculture and Forestry of the University of Nanking, made a survey sometime ago under the direction of Dean J. H. Reisner, of an area including six villages near Changchow. Information given here is taken therefrom.

The average number of families per village was 33.7, with 9 in the smallest village and 53 in the largest.

The average size of the family was 4.8 persons, the smallest family having one person and the largest 14. This gives a population density of 1422 per square mile.

The average size of farms was 14.3 mow (six mow equal one acre), the smallest farm having 1.5 mow and the largest 96 mow.

The average size of farm holdings was 19.7 mow, the smallest 1.5 and the largest 895.

Forty-four per cent of the farmers kept hired labor costing $1.10 per mow, or $6.60, silver, per acre.

Ninety-eight per cent of the farmers purchased fertilizer at a cost of $1.52 per mow.

Land Tenure: Eighty-eight per cent of the farmers were owners; five per cent tenants, and seven per cent landlords who kept part of their land under their own management.

Animals: Sixteen per cent kept hogs, eight per cent raised poultry, 21 per cent had water buffaloes for labor animals and 8 per cent kept yellow cows as labor animals. It is the custom in this region to keep little poultry because of the damage chickens do to growing crops. There were 67 labor animals in all, making 38.9 mow, or 6.5 acres, per animal.

Thirty per cent of the operators, that is, heads of families did other work besides farming.

The taxes averaged sixty cents per mow.

The cost of repairing implements per mow was 30 cents.

**Average Receipts and Expenses**

Receipts

| | |
|---|---|
| Crops | $219.26 |
| Silkworm and mulberry | 61.90 |
| Livestock | 64.32 |
| Receipts other than farm work | 83.06 |
| Total | $428.54 |

Expenses

| | |
|---|---|
| Taxes | $ 8.58 |
| Labor, hired | 9.08 |
| Fertilizers | 31.37 |
| Feed (for livestock) | 57.14 |
| Repair of implements | 5.73 |
| Total | $111.90 |
| Family income (all sources) | $316.64 |
| Family income (from farm only) | 233.58 |

It is interesting to compare the family income of $316.64 as shown by these figures, with that from 102 farms near Wuhu, a survey of which by the University of Nanking showed the family income to average $359.

The value of fuel used per family was $18.70 per year.

The number of rooms per family was 5.6.

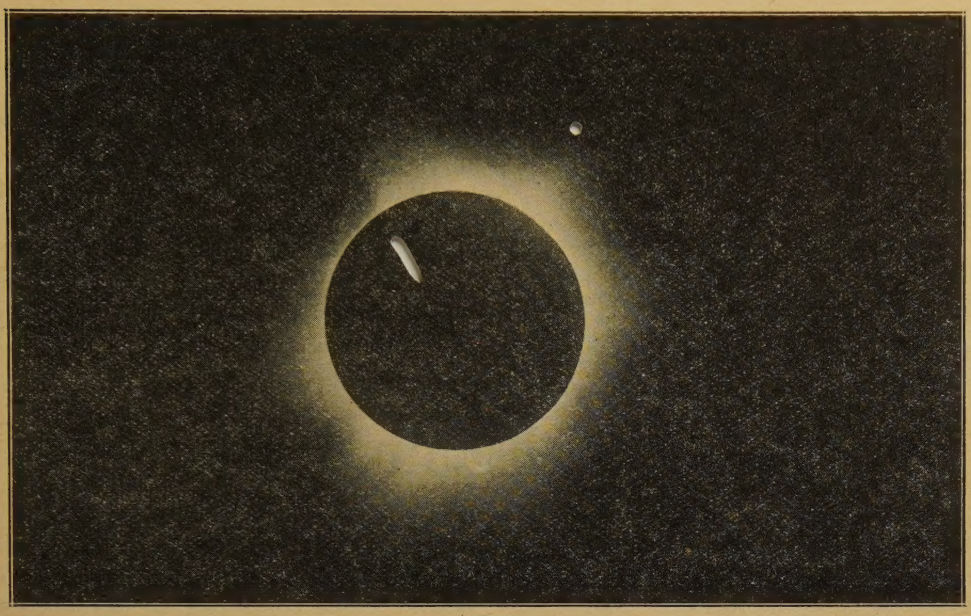
In the 202 families there were six widowers and 15 widows.

Eleven per cent of the families had marriage expenses during the year amounting to $247 per family. The highest was $450 and the lowest $50.

Seven per cent of the families had funeral expenses amounting to $207 per family. The highest was $280 and the lowest $150.

Thirty-five per cent of the families were paying for the education of their children in the village school to the amount of $12.71 per year. Three families had children away from home studying in the city schools.

The value of produce used by the family from the farm represented 31 per cent of the value of all produce raised on the farm and amounted to $68.80 per family.



*Preliminary Report of the Solar Eclipse Expedition to Sumatra, May 9, 1929.*

The expedition, headed by Professor Yamamoto, was stationed at Karang Inoue Estate, Peureula, East Coast Sumatra, and spent about four weeks in preparatory work. The program included two coronagraphs, two wide-angle cameras, three spectrographs and one Einstein camera, besides some more equipments for visual observations. Twelve persons were working (including two timers), half of which being volunteer assistants from the Estate. Forty-seven photographs were taken, including three plates for partial phases. The sky was rather good except a few earlier seconds of totality, so that some thirty or more plates yield impressions of the phenomena, about sixteen plates showing good to excellent images. Generally, the photographs of the corona were satisfactory, and it can be fairly well traced for the whole duration of totality. This spectrographs were, however, a failure, partly because of insufficient adjustments of instruments; except two small flash spectra with fixed arrangements. The Einstein camera obtained rather few stellar images because of thin clouds passing, but it shows beautiful images of corona and prominences and their variations.

The solar corona is of intermediate type, and definitely indicates the passing of the maximum activity of sunspots. The polar streamers are weak, especially in North Pole. In ex-polar zones, large, extending coronal wings are seen at position angles (referred to the sun's North Pole) 50°, 85°, 105°, 133°, 210°, 260° 295° and 315°; some of these wings are extending as long as the whole diameter of the sun or rather more, so that some of the wide-angle plates show a well developed hexagonal outline of corona. Prominences are seen at position angles 85°, 108°-128°, 145°, 253°, 257°, 301° and 308°, besides some small ones along the west limb; the one at 108°-128° is a wonderfully large and active prominence with the maximum height of about 4 feet above the solar limb, being quite conspicuous to all naked-eye observers; another at 257° is a detached prominence floating with a height of 2′. Several coronal arches are seen, among which four are conspicuous with the summits at 137°, 285°, 290° and 329°.

The predicted times of contacts were, in Sumatra Mean Time (referring to

Meridian -100°), 11 hr. 35 min. 44.s8, 13 hr. 5 min. 51.s0, 13 hr. 10 min. 51.s6, 14 hr. 39 min. 19.s8, of which all but the last were observed. The most probable correction to these predictions is -2s (too late).

Longitude and latitude observations of this camp (on the now-named "Boekit Bintang") have been made on several nights with a universal instrument. The results are:

Longitude = —6 hrs. 31 min. 10.s035 ± 0.s010—97° 47′ 30.″5 ± 0.″15 East of Greenwich,

Latitude = + 4 45 31.2 ± 0.5, North of Equator,

Altitude = 42 meters above sea level.

The longitude was determined by comparing observed local times with the wireless time-signals from Cavite, Philippines. The altitude above sea-level was obtained by measuring the difference from a Dutch levelling point nearby.

# A Letter From Harbin

You favoured me with a letter (addressed in Vladivostok) concerning the second food Conservation Conference to be held at Honolulu in 1931. Since 1925 I am in Harbin (China, North Manchuria) as Librarian of the Central Chinese Eastern Railway Library and teaching in the Russian Faculty of Law and Economics (now transformed in Chinese University). I should be very pleased to receive any information concerning Pan-Pacific Institutions on the address of the Chinese Eastern Railway Library, Harbin, China, N. Manchuria. Personally, I should be very happy to call attention to the more general questions concerning the climatology of the East Asia and particularly the connections briefly exposed in the adjoining paper. Perhaps you will find possible to publish it in your journal. I have read it at the third Pan-Pacific Congress. What about the work done by others? I send you a brief resumé of my friend Mr. Morosoff. Other persons are working here on the connection between crops and climate (Mr. Bedareff, on selection, etc. Mr. Krooshool the selection of wheat, Mr. Voieikoff, horticulture). Nearly all of them are working in contact with the Library or Faculty and part of them use biometrical methods of which I am a fervent adept. You will find the bibliographical contributions of some of them in the second volume of our "Bibliographical Bulletin" which I send you together with the first issue of the description of China containing an introduction by me (a brief sketch of geography, history and ethnography) and the description of any Chinese customs done by Mr. Baranoff based mostly on his own observations. The further issues should contain the papers concerning Economics, Law, etc., but now there are so many changes in Harbin, that probably only a part of it will be done. (Manchuria Research Society is closed for foreigners, Faculty, probably, will be too). A very important paper about the mineral resources of China by Mr. Ahnert is in print as a part of it and will give a rich information about soils, etc.

If you like I shall send you the short accounts about other establishments concerning food of the Chinese Eastern Railway (Experimental farms, etc.).

Formerly many studies were done by Russian scientists in the economics of Manchuria (in the rural conditions of Chinese farmers, etc.). Any of those works are resuméd in English (could be sent), but a concise general resumé I think should be preferable.

The Library should be very pleased to subscribe and to receive regularly the Mid-Pacific Magazine and the Proceedings of the First Food Conference.

Yours very truly, E. Tschepourkovsky.

# The Periodical Phenomena in the Atlantic Ocean and their Supposed Existence in the Pacific

**Prof. Dr. E. Tschepourkovsky. (Harbin, China).**

Nearly 25 years ago the late Doctor of Geography E. Lesshaft (St. Petersbourg) inspired by the ideas of the well known meteorologists M-S Petersson and Meinardus, published a work concerning the influence of the Gulf stream on the cyclones of Europe. A very curious periodicity was discovered by him. In even winters, 1874, 76, 78, etc., the number and the perseverance of cyclones coming from the Norwegian sea and going to the South increases, while the temperature of the Gulf stream along the Norwegian coast increases also. On the contrary the number of cyclones going to NE in even years decreases. Dr. Lesshaft explained this periodicity on the basis of the Ferrel theory of atmospheric circulation. If in one given winter the Gulf stream again is strong then a great mass of warm water is accumulated in higher latitudes and the difference between the polar minimum and equatorial maximum in higher strata of the atmosphere is not great; consequently the subtropical maximum owing its existence to the centrifugal force of polar depression is feeble. That is the reason why in the following year the trade winds of the tropics and the westerly winds of the temperate zone must be less well developed and consequently the equatorial drifts and the Gulf stream are feeble again. Consequently the polar sea is colder, the north polar minimum increases and in that way the process becomes periodic. In his later work, "The Ice of North Polar Seas," Dr. Lesshaft stated the connection between the development of ice in Barentz sea and the above mentioned fluctuations of the Gulf stream. We see at once how important are the practical consequences which could follow from this idea. If we know the strength of the trade winds in a given year, we can predict with more or less probability the meteorological phenomena and the ways of cyclones in Europe for the next year. Much later, in 1923, M. Vize also stated the connection between the southern limit of the ice on the Barentz Sea and the temperature of the Gulf stream. But more interesting for the interpretation of climates of the Far East is, I think, the last work of M. Shestakoff (Irkutsk), who established a connection between the Gulf stream and the winter temperatures of the East-Siberia.

We all know that the monsoon of Eastern Asia is of the first importance in determining the climatic conditions of that region. Its influence reaches as far as the Baikal Sea, being manifested in floods of rivers and fluctuations in the level of this lake. Now if the winter climate of Eastern Asia is the result of the struggle between the Asiatic anticyclone, monsoon and Gulf stream, the periodicity of this latter, if existing, can not be without interest for us. But perhaps there exists in the Pacific Ocean a periodicity of its own. Its typhoons and cyclones are analogous to the cyclones of the Atlantic Ocean, which as we have seen are influenced by the Gulf stream. The paths of typhoons depend probably upon two chief factors: the temperature of Kuro-Shio and other drifts, and the changes of atmospheric pressure on the Asiatic continent and on the ocean from winter to summer. We can see the influence of the Asiatic winter maximum on excellent maps edited by Zikkawei Observatory, but the paths of typhoons are not given there for each

month and consequently no periodicity, if it exists, can be discovered.

Two circumstances can facilitate the investigation of these complicated problems: 1. The use of new methods of mathematical statistics; 2. The cooperation of observational work.

The first circumstance is very important because, as I have said in another paper, by the aid of biometrical methods we can calculate the correlation between different phenomena and their most probable values, and dissect the compound phenomena. Those methods are now used in climatology and oceanography everywhere. In Harbin Mr. Bedareff (Meteorological Bureau of the Chinese Eastern Railway) calculated the coefficients of correlation between the anticyclones of Siberia and the number of typhoons passing E. China, crops of soya bean, etc. Mr. Chou established the weather types of China in connection with the Asiatic anticyclone. (See the Proceedings of the Third Pan-Pacific Science Congress.) But it is time to treat the atmosphere as a whole and even in collecting the separate data we must have in view general problems. Since the cooperative studies are necessary. They could be aided by establishing a central Pacific Statistical and Bibliographical Bureau, which I proposed to the Third Congress (See Proceedings p. 322) and by the publication in English of the abstracts of scientific papers concerning Pacific region, already published in other languages. F. i. it could not be without interest to compare the weather-types and the paths of cyclones of Mr. Chou with those established by European scientists for the Atlantic region. It is in accordance with this proposition that two volumes of Bibliographical Bulletin of the Chinese Eastern Railway Library were till yet published.

# A Letter From T. C. Roughley

You are probably wondering what has become of me. Let me hasten to assure you that my interest in the affairs of the Union has not waned, but my attention has been diverted somewhat far afield, and this has caused an accumulation of work with which I am scarcely able to cope.

Last year I spent nearly five months investigating the oyster resources of Tasmania, Queensland and Victoria for the Governments of those States, and the preparation of reports for an Australian Fisheries Conference has also taken up much of my time.

Our second Conference was held a few weeks ago, and much progress was made. The Council for Scientific and Industrial Research has definitely undertaken to establish a Marine Biological Station as soon as funds permit. Conference recommended the purchase of an investigation trawler for the purpose of carrying out exploratory work on the Australian coast. In other directions, also, there appears to be a definite awakening to the urgent necessity for research which will lead to the development of Australian fisheries.

The Curator submitted to me for report your letter containing the agenda for a food Conference. I stated briefly a few items which appeal to me as being worthy of discussion, but these could, of course, be added to with profit.

I am enclosing copies of two articles which I wrote for the "Sydney Morning Herald" on our fisheries. These were published this week, and will serve to show you, not only the great need for an investigation of our marine resources, but will give you some idea of the present backward state of our fisheries.

With very kind regards,

Yours sincerely,

T. C. Roughley,
Economic Zoologist,
The Technological Museum,
Sydney.

# Letters on the Food Conservation Conference

Honolulu, August, 1931.

A number of replies are being received from those who have received the tentative agenda of the Second Pan-Pacific Food Conservation Conference, and as the suggestions made in these are of constructive interest, several are published in the Journal in the hope that they will encourage kindred suggestions from others who are interested in the Conference.

The following is from the Agricultural Chemist of the Department of Agriculture, Peradeniya, Ceylon, and it may be added that the Journal will be sent free to any scientist desiring it.

"I read in a number of the Journal of the Pan-Pacific Research Institute that you are willing to send agricultural officers in the tropics, free of charge, your interesting journal on application. I shall therefore be glad if you could kindly register my name on your mailing list.

"I may state that I am greatly interested in all soil and food problems of the tropical countries and would be glad if all publications re the Conference in 1931 could be sent me, as I wish to keep in touch with developments."

From Dr. Arao Itano of the Ohara Institute for Agricultural Research, in Japan, the following is quoted:

"Received your letter dated July 26th, together with three copies of Journals of your Institute for which I am very thankful.

"Looking over your agenda for the Second Pan-Pacific Food Conservation Conference in 1931, it is very appealing and I am willing to serve you all I can, and will try hard to attend the Conference, if possible.

"I am intending to attend the Conference of I.S.S.S.—The International Society of Soil Science which will be held in Russia next year. Consequently I shall be handicapped in finance and time for 1931. But no one can tell what may happen two years hence and I will strive in hope to visit you then."

The following is from Theo. H. Scheffer, Associate Biologist of the United States Department of Agriculture, Bureau of Biological Survey:

"I have had on my desk for some time your communication of June 1, concerning a proposed Pan-Pacific Food Conservation Conference in 1931; also copy of the Journal for April-June, 1929. With apologies for tardy acknowledgment, I wish to express my interest in the matter and hope that I may be able to have something worth while for the program of this conference on conservation of the harbor seals and the sea lions.

"I am at present engaged part time on a study of the food habits of the seals, looking to their vindication on charges of being anything more than merely nominally destructive to food fishes, particularly salmon. So far my investigations have shown results overwhelmingly in favor of the seals. Oregon and Washington are paying bounties on their scalps, but there is abundant evidence that it is the hue and cry of the bounty hunters and not the complaints of the fishermen that is heard in legislative halls.

"Seal oil, seal skins (harbor seal), seal meat are too valuable as products of the sea to be entirely wasted in the ruthless slaughter that is going on now, to say nothing of the impending extermination of a race that might be of still more value to posterity.

"I shall be glad to receive further Bulletins concerning the proposed conference."

From A. F. Woods, Director of Scien-

tific Work of the United States Department of Agriculture, the following is of interest:

"Dr. L. C. Gray, Bureau of Agricultural Economics of this Department, referred to me some time ago your letter of June 1st, relative to representation at the Second Pan-Pacific Food Conservation Conference to be held in Honolulu August, 1931.

"I have had a canvass made of the branches of the Department which would be interested in the Conference.

"Our Bureau of Entomology has an Associate Entomologist, Mr. A. C. Mason, stationed in Honolulu, and Mr. H. F. Willard, of Plant Quarantine and Control Administration, is also stationed there and if in Honolulu at the time of the Conference might be designated to attend.

"Our Bureau of Chemistry and Soils is interested in a number of the topics that will come up for discussion, for instance, the sugar industry, field crops, production and improvement, soils, fertilizers, land improvement and reclamation. This Bureau would probably desire to send one representative each from the chemical and technological group and from the soils group. Although chemical technology, except in so far as it may relate to the sugar industry, is not mentioned in the twelve subjects named in the agendum, it certainly should find a rather large place in the discussion of field crops, production, and improvement.

"The Bureau of Plant Industry will probably wish to send two or three representatives."

It might be added that on the initiative of the late Senator Henry Cabot Lodge the United States Government appropriated $9,000.00 to send official delegates to the first Science Conference called by the Pan-Pacific Union. He was one of the firm supporters of the Union.

From the Director of Agriculture in Peru the following is received:

"I have read with very considerable interest your various papers, etc., in connection with the Second Pan-Pacific Food Conservation Conference to be held in Honolulu in August, 1931.

"If the production of wool and mutton in Peru and the development of the alpaca industry in the Andes, would prove suitable subjects for the above conference, I would be very pleased to read a paper combining these two important matters illustrating same by means of the cinema and lantern.

"There are many factors in the development of the sheep industry in the Andean altiplano which might prove not only of exceptional interest but which might create a most interesting discussion and lead to a comprehensive understanding of the many problems with which one has to deal in raising sheep in these high portions of the earth's surface.

"Should you consider such a paper, as I have briefly outlined, would be a popular item on your agenda, I would leave it to your Union to send me the usual official intimation through the administrative channels of the Government of the Republic, so that Government sanction and help would be afforded.

"With every good wish for the unqualified success of the Conference."

The official invitation will be forwarded.

From the Chief of the Bureau of Agricultural Economics the following is encouraging:

"Several of your communications to members of this Bureau have recently come to my desk.

"I note that the Second Pan-Pacific Food Conservation Conference will be held at Honolulu in the fall of 1931. In glancing over the program I note a number of subjects in which this bureau is vitally interested. We have, naturally, devoted considerable attention to problems in reclamation and labor and the various subjects that come under the heading of economics.

"We shall be pleased to bear the matter in mind and will appreciate being

kept advised of any further developments bearing on the Conference."

From E. A. Eggersgluess, Assistant Horticulturist, Sitka, Alaska, the following is of interest:

"Your letter of June 1st, and a copy of the Journal of the Pan-Pacific Research Institution has been received. I am interested and would like to attend the Second Pan-Pacific Food Conservation Conference to meet in Honolulu, August, 1931, if arrangements can be made so that I will be able to leave my work at that time. You may send me future Bulletins from time to time whenever you have them available.

"I shall try to get other people interested in attending the Conference, and send you the names if successful."

From Arthur Koehler, United States Department of Agriculture, Forest Service (Forest Products Laboratory) the following:

"Your letter of June 1 received. I shall be glad to receive further announcements of the Pan-Pacific Union meeting for 1931. My interest in the subject matter lies in Forest Products and particularly in the field of relation of environmental factors in tree growth to the quality of wood produced, which is a new and important field of research we have entered into."

The Lieutenant-Governor at Port Moresby, Territory of Papua, writes:

"With reference to your letter, I would suggest that you correspond with our Chief Medical Officer, Dr. W. M. Strong.

"Dr. Strong has given special attention to the science of food. He would be willing to write a short paper on the effects which are produced on human beings by an inadequate vitamin supply in their diet, and on the general distribution of vitamins in vegetable products.

"Dr. Strong would also be willing to be nominated as a correspondent with the Union."

He has been written to, and will be welcomed.

The following is from A. R. Penfold, Curator of the Technological Museum, Sydney, Australia:

"I beg to advise that the agenda was submitted to the various officers of this Institution for any suggestions, as desired by you.

"I am pleased to advise that the Economic Zoologist, Mr. T. C. Roughley, has furnished the following suggestions, which I pass on to you for criticism and adoption, if deemed advisable:

"With reference to the section of the agenda dealing with fisheries, I should like to see a number of economic questions set down for discussion. Some aspects worthy of consideration suggest themselves as follows:

"Each country represented to state clearly the present proposition of the fisheries, the annual catch (in the aggregate and per head of population) the methods employed to capture the fish, the means of distribution, the preservation of fish by canning, smoking, etc.

"With this as a basis a very profitable discussion could take place on the possibilities of development. The most improved methods of fish refrigeration, the most efficient means of distribution of fresh fish, the exploration of grounds at present unproductive, the commercial utilization of sharks, and other broad questions of fisheries development could with profit be discussed.

"Much good would be done, also, by a discussion of other branches of the fishery industry, including oysters, crustaceans such as lobsters and prawns, pearl shell, trochus, bêche de mer, sponges and turtles.

"The question of an international agreement covering the taking of whales with the object of conserving this fishery would also be a subject worthy of attention."

In the files of the Pan-Pacific Union is a letter from the late Dr. Onissimenka, D.V.M., a delegate from Russia to the first Pan-Pacific Food Conservation Conference, who died of anthrax in the

service of Hawaii. He wrote shortly after the close of the First Food Conference as follows:

"I would like also to speak some of my considerations regarding the Resolution 28 of the Pan-Pacific Food Conservation Conference, touching the necessity of uniform quarantine regulations for live stock and animal products. My opinion at that conference was and it continues to be such, that China, Manchuria and Mongolia, promising to become in future sources of very considerable amounts of animal food so necessary for world market, are absolutely not ready for establishing of normal sanitary measures against animal diseases, that have free and controlless existence over very vast areas, bringing perpetual menace of infection for other countries. Thus the United States was recently infected with Foot and Mouth disease, that cost for people and for government very heavy losses in live stock and money. The rinderpest was imported from the same source to Australia and only occasionally did not destroy the animal industry of this country, etc. In such conditions it would be wise to discuss not only about very important idea of the uniform quarantine regulations but principally about more successful actuation and improvement of general veterinary sanitary conditions in a very great area, involving now in cooperation with all Pacific countries. I understand that such enterprise should belong to the government of those countries, but it would be quite hopeless to expect such improvement will come easily from that side, whilst the economical interests of other more civilized countries should be preserved. I believe that for the actuation of more normal conditions with quarantine regulations and sanitary conditions the proper scientific influence would be very useful and necessary. Such influence could be propagated through the establishing in China or in Mongolia of a special scientific research institution, may be together with veterinary educational faculty, analogous to the Rockefeller's Medical Institution existing now at Peking (China). (I am not sure, if that Institution has the name of Rockefeller). Such institution established for purposes of special study of infectious animal diseases, existing in a great extent in China and Mongolia, and of inventing more efficient methods of vaccinating and control of it would be very profitable for all civilized Pacific countries, the more that any research work with most dangerous diseases as Foot and Mouth diseases is prohibited in the U. S. A. as well as in other countries. As I have already mentioned the Foot and Mouth disease imported to the United States from China caused very heavy commercial losses, till it seemed to have been eradicated, but we could read in papers the other day, it made its appearance in California again, causing new losses and a great trouble for economical life of a great country. If this idea would be approved by the Pan-Pacific Union, the initiative of further propagating it should belong to the Union. I believe a joint commission recommended by Resolution 28 to promote uniformity in the quarantine regulations, scarcely will be able to find a decision of that question, since all her propositions will inevitably be paralyzed with unpreparedness of vast Asiatic areas. The scientists of all Pacific countries should take a part in research work of that Institution and the financial resources can be obtained from the governments of its.

"Please excuse me for my wrong English, but I hope you will understand my idea though written not properly."

The following is from W. C. Henderson, Associate Chief of the Bureau of Biological Survey, United States Department of Agriculture:

"Your letter addressed to me and others addressed to members of our staff and the accompanying copies of the Journal of the Pan-Pacific Research Institution, have been received. We are interested to note the program of the

Second Pan-Pacific Food Conservation Congress and shall be glad to have any further information which you may issue regarding the proposed conference.

"It occurs to us that it might be desirable for you to include a section on wild animal life, including birds, mammals, and fish, or other forms utilized for food. This is a feature in which there is great interest that would apply in a most important way to the Pacific Coast regions. Wild animal life is an important feature in connection with forested and other lands and the game species are an important source of food.

"We are inclosing herewith a list of Federal and State officials and other organizations concerned with the conservation of game in the United States. Among these you may find some that would be interested in the conference."

C. L. Shear, Principal Pathologist of the Bureau of Plant Industry, who was a guest of the Pan-Pacific Research Institution, writes:

"I was glad to get the announcement of the second Pan-Pacific Food Conservation Conference. You have laid out an excellent line of topics. We shall be very glad to receive any future bulletins relating to the Conference. I certainly hope I may be able to attend."

E. N. Nunns, Chief, Office of Forest Experiment Stations, United States Department of Agriculture, writes:

"Your letter of June 1st, addressed to Mr. Kylie has been received. I am very glad indeed to have the copy of this program and to know of the wide field that the Pan-Pacific Union covers. As the Forest Service may wish to have one or more delegates present at this conference, I would appreciate it if you would keep me fully informed of the plans and developments in it.

"I am enclosing a list of the Forest and Range Experiment Stations and the Forest Products Laboratory in the United States, whose personnel may be interested in the conference, and trust that you will be able also to furnish them with your agenda."

Dr. O. E. Baker, Senior Agricultural Economist, United States Bureau of Agricultural Economics, writes:

"Referring to the program of the Pan-Pacific Food Conservation Congress, I would suggest as the fourth subject under section 10, 'Economics,' population and the food supply. The population of the United States is rapidly approaching a stationary condition, and this is true also of the countries in northwestern Europe. This is a development of the utmost importance from the standpoint of agricultural expansion. I do not know about the trends in other countries of the world, but I am certain that there is no subject of greater importance than this, of the probable demand for food, fibers and other agricultural products, in the near future, and indeed in the next fifty years. It would seem to me that this subject would be discussed at your Conference."

J. A. Le Clerc, Senior Chemist, Food Research Division, United States Department of Agriculture, Bureau of Chemistry and Soils, writes:

"I am interested in certain phases of the proposed conference; especially that referring to the utilization of the by-products of field crops and of the consumption of these crops in various countries. I shall, therefore, be pleased to be kept informed regarding this Conference and to receive such programs as may be available."

From H. C. Diehl, Associate Physiologist, Bureau of Plant Industry, United States Department of Agriculture:

"I am much interested in the agenda for the second Pan-Pacific Food Conservation Conference to be held in Honolulu in 1931. I hope you will continue to send me the bulletins dealing with this and similar matters.

"You may be interested in the fact that we are at present conducting an extensive series of studies dealing with various aspects of the frozen pack for fruits and

vegetables, which is briefly indicated in sub-section 1b of section III of the agenda. This work began in 1924 and for the first three years dealt mainly with problems encountered in packing fruit in barrels for freezing storage.

"A striking new development in the ever-growing use of small containers for this product has reopened many research questions, and the possible magnitude of the retail distribution of frozen food products has drawn our interest again to these questions."

From M. A. Jull, Senior Poultry Husbandman of the Bureau of Animal Industry, United States Department of Agriculture:

"Your letter has been received, in which you enclosed tentative agenda for the Second Pan-Pacific Conservation Conference to be held in Honolulu, August, 1931.

"We have looked over the agenda very carefully and believe it to be quite complete except that it does not give much, if any, space to the consideration of the services the poultry industry renders in the utilization of waste and other products, converting them into highly edible food products.

"You probably are aware of the fact that among the various classes of domestic animals the chicken is the smallest economic unit and can transform various feeds into edible products probably more efficiently than most other animals.

"Otherwise, in the Pan-Pacific States there undoubtedly is an excellent opportunity for the development of the poultry industry as a permanent branch of agriculture looking toward the conservation of many foods as well as the efficient production of valuable food products. It would seem, therefore, that the agenda should include something on the place of the poultry industry in agriculture in the Pan-Pacific countries."

From Dr. Wu Lien-Teh, Harbin, China, who attended the first Conference:

"It is very nice to be able to write you again and to congratulate you upon your continued output of excellent work on behalf of science and the Pan-Pacific Union.

"Since I visited you in 1924, there has been a steady stream of Chinese delegates to your beautiful Island, and I sometimes wonder how you can keep up with the strain resulting from new acquaintances and correspondence.

"In reply to your enquiries, I have pleasure in nominating the following food experts of China for your consideration:

Prof. Robert S. K. Lim, Department of Physiology, P. U. M. C., Peking;

Prof. Hsien Wu and Madam Hsien Wu, Department of Biochemistry, P. U. M. C., Peking;

Prof. Ping, Department of Biology, National University, Nanking.

"The first gentleman is the son of Dr. Lim Boon Keng, President of the University of Amoy, and expects to attend the International Congress of Physiology to be held in Boston next September, so may be present at your Congress if held in 1931.

"I have no plans at present, but if you wish to hear officially from the Government it would be well to address the Ministers in charge of the Ministry of Health and the Ministry of Agriculture in Nanking. With best wishes and always at your service."

From A. J. Bowen, University of Nanking:

"The Agenda for Food Conservation Conferences seem very interesting indeed. I wish we might have one or two men there but I am afraid it will be impossible. Mr. Buck will probably be going home, sailing about the middle of June. We hope that he can go by Honolulu and if he does, I will urge him to look you up. You would be very much interested in knowing what he is doing in the way of farm survey and land utilization studies. I think they are very valuable for intelligent understanding of some of China's major problems and

fundamental to any plan of improvement.

"Thanking you for these publications, and we still remember our good time during my brief visit with you last August."

From W. V. Gruess, University of California, College of Agriculture:

"I am returning the galley proof of the program for the next Food Conservation Conference, with a suggestion or two written thereon. The general plan appears to be very comprehensive and extremely interesting.

"I deeply appreciate your cordial invitation to visit you and to attend the institution but the press of duties here and the lack of traveling funds prevent. If you should wish, however, members of our staff could prepare several short articles for the conference from the following list:

1. Utilization of surplus prunes, E. M. Mrak.
2. Freezing storage of perishable fruits, M. A. Joslyn and W. V. Cruess.
3. The potentialities of Dehydration, P. F. Nichols.
4. New possibilities in fruit drinks, H. B. Farley.

"With best regards."

A good example to imitate.

From E. W. Brandes, Principal Pathologist in Charge, Office of Sugar Plants, United States Department of Agriculture:

"I have your letter announcing the Second Pan-Pacific Food Conservation Conference to be held in Honolulu in August, 1931.

"As I would be interested only in the sugar section of the Conference, I must confine my suggestions to matters pertaining to that section. As you know, the International Society of Sugar Cane Technologists grew out of the sugar section of the first Pan-Pacific Food Conservation Conference and has held three meetings to date, namely in Honolulu, Havana and Java. The question of where the next meeting will be held will come before the delegates who attend this year's meeting at Soerabaia this month and next. It is questionable whether more than local interest could be stimulated in a sugar meeting at Honolulu if it is decided to hold the I. S. S. C. T. elsewhere that year.

"If it is decided to hold the meeting again in Honolulu in 1931, I will be more than glad to cooperate by recommending that one or more of our people prepare papers and attend the meetings."

A most valuable letter comes from Dean F. M. Clement, of the University of British Columbia, College of Agriculture:

"Dean Brock has asked me to reply to your letter of April 9th, which has just reached me. The following men might be interested in your program. All are members of the staff of the University of British Columbia:

II. Field Crops, Production and Improvement, Professor P. A. Boving, Dr. G. G. Moe;

III. Horticulture, Professor A. F. Barss, Dr. G. H. Harris;

IV. Plant Industry, Dr. A. H. Hutchinson, Professor G. J. Spencer;

V. Soils, Fertilizers, Land Improvement, Professor D. C. Laird;

VII. Forests, Professor H. R. Christis.

VIII. Animal Industry, Professor H. M. King;

X. Economics, Dr. T. H. Boggs, Dean F. M. Clement;

XI. International Law and Agreements, Professor H. F. Angus."

From W. L. Lowdermilk, California Forest Experiment Station:

"I have your letter, which was forwarded from Nanking, China. I am very glad to have the bulletin of the Pan-Pacific Union, containing the tentative agenda for the Second Pan-Pacific Food Conservation Conference in Honolulu in August, 1931.

"A short memorandum is being prepared by me which will follow at a later time, containing a few suggestions which I hope you will consider.

"You will be interested to know that my studies on the factors that affect the surficial run-off of rain and erosion of soils were transferred from China to California. One particular phase of these studies has been completed. The new information, I believe, is going to enable us to understand some of the forces that determine the wastage of soil and also favor the control of erosion and conservation of rain.

"At a later time I hope to have an article for your magazine."

From Lt. A. F. Hegenberger, who flew from San Francisco to Honolulu and was a frequent attendant at the Friday night science suppers at the Pan-Pacific Research Institution:

"Your letters containing the agenda for the next Food Conservation Conference arrived.

"I am sure that a section devoted to the application of aeronautics to this important subject would be most interesting, not only from the transportation point of view but from many other angles, such as air survey in connection with irrigation and power developments, crop surveying, crop dusting, etc. The airplane today is quite an economic factor in food conservation.

"I am keeping your letter in my basket in order that I may be reminded to reply at greater length after I have had the opportunity of looking up additional data on the subject."

From Seitaro Goto, Tokyo, Japan:

"I am in receipt of your favor, and thank you for the honor you have done me by inviting me to suggest someone with whom you may enter into correspondence in connection with the Second Pan-Pacific Food Conservation Conference to be held in Honolulu in 1931. My friend, Mr. Katsuya Tago, who was formerly a professor at the Imperial Fisheries Institute and is now connected with the Imperial Cabinet as a Food Specialist with special reference to fisheries products, is in my opinion a very fit person for you to write to. He is going out to Brazil shortly in connection with a Japanese colonization project there but will be able to come back to Hawaii or Japan in time to take part in the Conference. He has expressed to me his willingness to be a Japanese representative at the Conference, and he believes that the Cabinet will consent to appoint him one."

Dr. R. Nakaseko writes:

"In reply to your favor of some time ago, I wish to recommend to you my friend Professor Kinsuke Kondo, Dr. Agr. Science of Kyoto Imperial University, for your further correspondence regarding the Food Conservation Conference to be held in Honolulu in 1931.

"Dr. Kondo is an able, youthful, energetic food specialist of the Agricultural Department of the University here. He is versed not only in the physical-chemical side of the question, but also in the home-economic side of feeding the population of a large city such as Kyoto and Tokyo. I have asked him to send to you all the important papers so far published by him in connection with the food problem.

"He was educated in Sapporo Agricultural University, originally organized by Dr. Clarke, as you know. During two years extending from 1922 to 1924 he made a further study of chemistry of nutrition at the Carlsberg Laboratory in Denmark, under direction of the great master, Sorensen, of Copenhagen. In the summer of 1924 he came home through Hawaii to take his post at the then newly instituted Department of Agriculture of the Kyoto Imperial University.

"He is a gentleman of fine physique, of fine disposition, of great enthusiasm, and is, best of all, full of public spirit and of broad international viewpoints."

Edward Shin, of the Imperial Chemical Industries in China, writes:

"I will send you seeds of some, if not all, of the plants I mentioned in my article. I presume that you will arrange with the Federal Horticultural Board at Washington, D. C., or probably in this

case with the Bureau of Agriculture and Forestry for special attention for importation of foreign seeds.

"I wish to thank you for your kind invitation to have me at the Pan-Pacific Research Institution when I visit Honolulu.

"I asked one friend yesterday if he will attend the Food Conservation Conference in August, 1931. In reply he said he will make every effort to go, if he can represent the Agricultural Society and the Science Society in China, of which he is a member. This friend is Dr. Chunjen C. Chem, an agriculturist and geneticist. His address is: Shantung International Relief Committee, Jui Yuan Li, Tsinan, Shantung, China. He will be glad to hear from you."

Dr. N. Gist Gee, of the Rockefeller Foundation in Peking, writes:

"This will acknowledge receipt of the bulletin of the Pan-Pacific Union, which contains the tentative agenda for the second Pan-Pacific Food Conference, which is to be held in Honolulu in August, 1931. I am passing this bulletin on to Dr. Hsien Wu, who is head of the Department of Biochemistry at the Peking Union Medical College. Possibly he may be interested in the Conference which is announced in the bulletin.

"I think possibly some of the teachers of Biology in the various institutions in China may be interested in the literature concerning the Conference, but I hardly think that it will be possible for many of them to attend. I would suggest that you write to Dr. H. H. Kung, Minister of Commerce in the Chinese Government in Nanking, as it is possible that he may be able to interest the government there in having representatives present at the Conference."

Knowles A. Ryerson, Principal Horticulturist in Charge, Bureau of Plant Industry, United States Department of Agriculture, writes:

"I have your letter of June 1 and tentative agenda for the Second Pan-Pacific Food Conservation Congress to be held in Honolulu August, 1931. I am particularly interested in the tentative program outlined for the Plant Introduction Division of the Plant Industry Section, as that is the work with which this office is directly concerned. I hope that a thorough discussion of the topics of the agenda will be held. There are many points in favor of a Pan-Pacific Cooperation Plant Distribution Station, and such a matter is being considered in connection with the Pan American countries and will be discussed in all probability at a conference here in Washington next May. Of course this problem is intimately connected with the plant quarantine work and will come under discussion of the Plant Quarantine Division. I hope I may be able to attend the Congress myself, or if not, to have a representative of this office there. In connection with the fruit studies, I would suggest Dr. E. C. Auchter, of the Office of Horticultural Crops and Diseases of the Bureau of Plant Industry, be among those taking part in the discussion. He is doubtless already on your list. Professor Robert W. Hodgson, in charge of the Division of Subtropical Horticulture of the University of California, is another who has made a study of the fruits of the Pan-Pacific region. If possible, it would be desirable to have the attendance of Mr. Wilson Popenoe, formerly of the Department of Agriculture, now in charge of experimental work for the United Fruit Company, Tela, Honduras. Long in contact with the horticulture of the Far East as well as Latin America he is one of the outstanding tropical horticulturists of the world.

"It may be that by August, 1931, Mr. W. J. Morse, soybean specialist of the Department of Agriculture, will be returning from the Orient, where he is now on an expedition from this office to study soybean varieties. He would have some interesting observations to make at that time.

"I shall be glad to be placed on your mailing list for future bulletins."

# Fish From Siberia

Fam. Lithodidae—Gen. Paralithodes Brandt. Paralithodes longirostris n. sp.

By N. Navozoff Lavroff

The species we are describing is very seldom seen. We are very sorry that we have only one cephalothorax of this new species which was found in the stomach of cod-fish, therefore we cannot give all systematical signs of this species. But the slight observation shows that we have before us the new species of Paralithodes.

As we have only one cephalothorax, we must be limited with describing of the differences in the structure of cephalothorax rostrum and scaphocerites, which differ from formerly described species very much.

Cephalothorax of this species is heart-shaped and thorny, as the others but the thorns covering it are disposed otherwise.

P. camtshatica has in the middle of forepart of cephalothorax 9 thorns which are disposed thus. Four pairs are going parallelly to each other and to the proposed middle line which divides the cephalothorax into right and left sides. Then there is one unpair thorn which closes this figure and is placed on the middle line a little lower than the pair ones. The hind part of cephalothorax brings usually 7 thorns which are disposed just the same.

P. platypus usually in the forepart of cephalothorax has 7 thorns and in hind part only 5 and rarer, 7, which are disposed like the preceding species.

The new species has 12 thorns on the fore highness of cephalothorax. Eight of them are disposed similar to the preceding species, but the four of them are disposed along the middle line of cephalothorax between the pair thorns, as it is shown in the painting. It is the first diversity of this new species.

Yet the building of rostrum of described species may be considered the brightest different sign.

Rostrum consists of two slivers of the fore-lower and fore-up ones. The first is small and sable-like. The second is large and thorny. It is two times and a half as large as the first one and is in the length of cephalothorax four times, meanwhile the small fore-lower one is contained in the length of cephalothorax 9-10 times.

The large fore-up sliver of rostrum is armed with six strong and sharp sidelong thorns. Two of them end rostrum making it like a fork. Four others are placed at the edges of rostrum by two on each side.

Besides these thorns there are three thorns else in the mid line of rostrum, which are placed between sidelong thorns.

The third sign distinguishing this new species from the formerly described ones are the scaphocerites. They are of fork-like form as those at P. platypus and P. brevipes, but shorter than shown species. It almost equals at length to the fore-lower sliver and the third limb of the outside of cirri.

The general aspect of this new species resembles P. platypus in form and color.

This species was found sometimes in the stomach of cod-fish but not very often. It was found at the Bering Sea by Isle of Karaginsky and by Stolbovoy.

It is as large as 15 centimeters at length of the cephalothorax.

The measure of the Paralithodes longirostris.

The length of cephalothorax in centimeters, including rostrum, 11.8; without rostrum, 9.3. The greatest width, 10.0. The length of rostrum, fore-lower sliver, 1.0; fore-up sliver, 2.5. The length of scaphocerites, 0.9. Remarks: The perciopes are lost.